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EXAMINER

SAHA, BIJAY S

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

06/10/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pto.phil@dlapiper.com

DETAILED ACTION

The amendment filed on 03/18/2010 has been entered.

Status of Application

The new, amended and original claims 10-17 and 19-20 are pending and presented for the examination. The original claims 1-9 and 18 have been cancelled.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 10-17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al US 2001/0038938 (hereinafter US'938) in view of Hirai et al US 2003/0194608 (hereinafter US'608) and Nakatsugawa US 4,483,906 (US'906).

Regarding claims 10 and 20, US'938 teaches an electrochemical element (fig 8 and Fig 9 page, examiner considers voltaic element is equivalent to voltaic element), lithium secondary battery (para 0039 page 3), and a housing envelope (para 0027), a flexible envelope (para 0034), envelope formed by laminate film (para 0154), connected to positive and negative electrodes (Fig 1B and 2B), connected to safety electronics (Fig

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5, part # 106, 105), conducted exteriorly (Fig 6 part # 106), electrode formed of copper (para 0113), set of positive and negative electrode collector (Fig 8, Fig 9 and Fig 10), external electrodes (#226 Fig 12 and 13), external electrode or out lead (#203 Fig 8) and collectors made of copper foil (para 0069).

Although US'938 teaches terminal made of "...foils of various metals ...such as copper..." (para 0085), US'938 does not explicitly teach coating the copper foils by nickel.

US'608 teaches copper member for battery (Title), terminal made of "...copper (Cu) including nickel plated copper..." (para 0033).

US'906 teaches the copper foil production process (col 5 line 33), electroplating of 0.2 micron nickel coating on copper foil (Col 5 line 46-54, Example 1), nickel layer formed one or both sides of said copper layer (Abstract).

At the time of invention it would have been obvious to a person of ordinary skill to make an electrode element (US'938's teaching) utilizing the nickel plated copper electrodes (US'608 teaching). The suggestion or motivation for doing so would have been to "[e]xcellent in corrosion resistance ..when using foil shaped ...or plate shaped member as such a terminal ..." (US'608) and a "[p]rocess ...suitable for commercial production" (US'906).

Regarding the nickel layer thickness range, examiner considers: In MPEP 2144.05 [R-5] Obviousness of Ranges, "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists".

Regarding claims 11 and 13, US'938 teaches protective component is inserted in the link between element and safety electronics (Examples B1 and B2, para 0183).

Regarding claims 12, US'938 teaches protective element PTC thermister (Para 0183).

Regarding claims 14, US'938 teaches a thermal fuse (para 0183).

Regarding claims 15, US'608 teaches nickel coating of copper electrode (para 0033 and claim 1).

Regarding claims 16, US'938 teaches nickel-coated copper diverters are 2 mm to 15 mm wide (Figures 2A, 2B, 4,5 and 6, component # 113, 14, 106). Examiner considers these dimensions based upon the dimensions of the 5 mm wide strip (para 0157) and thermister of 0.5 mm thick (para 0176).

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Regarding claims 17, US'938 teaches nickel-coated copper diverters are 15 μm to 150 μm thick (para 0079).

Regarding claims 17, examiner considers: In MPEP 2144.05 [R-5] Obviousness of Ranges, "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists.

Regarding claims 19, US'938 teaches the housing comprises a compound aluminum film (para 0154).

Summary

The claims 10-17 and 19-20 are rejected.

Response to Arguments

Applicants' arguments filed 03/18/2010 have been fully considered but they are not persuasive.

Applicants argue "hypothetical combinations" of Takahashi (US'938), Hirai (US'608) and Nakatsugawa (US'906) and claim that Hirai "..would lead away..."

The primary reference Takahashi (US'938) teaches the terminal made of "...foils of various metals ...such as copper..." (para 0085), US'938 does not explicitly teach coating the copper foils by nickel. Hirai (US'608) also teaches "copper member for battery". Hirai (US'608) is more concerned about corrosion on electrodes "...While copper had been considered to be hardly exposed to the risk of being corroded, there was actually the risk of suffering from corrosion, as in aluminum, caused by hydrofluoric acid generated from the reaction between the electrolyte of the lithium-ion battery and water during service for a long period of time, leading to loss of sealing property resulting from peeling at the bonding surface with the packaging material..." (para 0034).

Nakatsugawa (US'906) teaches the application of nickel coating on copper that makes the surface also free of undercutting and strongly adhered to the substrate.

Applicants argue about the thickness of the nickel coating. Nakatsugawa (US'906) teaches a coating thickness of 0.2 micron which is within the claimed range of 10 nm to 3 microns.

Applicants argue, multiple times, about the "...copper foil coated with nickel on both surfaces ..." Nakatsugawa (US'906)"...a copper layer and a nickel layer formed on one or both sides of said copper layer...".

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **BIJAY S. SAHA** whose telephone number is (571) 270-5781. The examiner can normally be reached on Monday- Friday 8:00 a.m. EST - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Mayes can be reached on (571) 272 1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BIJAY S SAHA/
Examiner, Art Unit 1793

BSS

June 6, 2010

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793